

IN THE CLAIMS

1-35. (Canceled)

36. (Previously Presented) A transistor comprising:

a source region, a drain region, a channel region between the source and drain regions, and a gate separated from the channel region by an insulator, the gate formed of a silicon carbide compound $\text{Si}_{1-x}\text{C}_x$, wherein x is less than 1.0 and substantially greater than 0.5 to establish a desired value of a barrier energy between the gate and the insulator.

37. (Previously Presented) A transistor comprising:

a source region, a drain region, a channel region between the source and drain regions, and a gate separated from the channel region by an insulator, the gate formed of a silicon carbide compound $\text{Si}_{1-x}\text{C}_x$, wherein x is selected at a predetermined value between 0.6 and 1.0 to establish a desired value of a barrier energy between the gate and the insulator.

38. (Previously Presented) The transistor of claim 36, wherein the silicon carbide compound is substantially intrinsic $\text{Si}_{1-x}\text{C}_x$.

39. (Previously Presented) The transistor of claim 36, wherein the insulator is formed of silicon dioxide.

40-58. (Canceled)

59. (Previously Presented) A transistor comprising:

a source region formed in a substrate;
a drain region formed in the substrate;
a channel region in the substrate between the source region and the drain region; and
a gate separated from the channel region by an insulator, the gate comprising a silicon carbide compound $\text{Si}_{1-x}\text{C}_x$, wherein x is selected to be between 0.75 and 1.0.

60. (Previously Presented) The transistor of claim 59 wherein:
the substrate comprises a p-type silicon substrate;
the source region comprises an n+-type source region formed in the substrate;
the drain region comprises an n+-type drain region formed in the substrate; and
the insulator comprises a layer of silicon dioxide.
61. (Previously Presented) The transistor of claim 59 wherein the gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.
- 62-70. (Canceled)
71. (Currently Amended) A floating gate transistor comprising:
a source region formed in a substrate;
a drain region formed in the substrate;
a channel region in the substrate between the source region and the drain region;
a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $\text{Si}_{1-x}\text{C}_x$, wherein x is selected to be between $[[0.5]]$ 0.6 and 1.0; and
a control gate deposited on the floating gate and separated from the floating gate by an intergate dielectric.
72. (Previously Presented) The floating gate transistor of claim 71 wherein:
the substrate comprises a p-type silicon substrate;
the source region comprises an n+-type source region formed in the substrate;
the drain region comprises an n+-type drain region formed in the substrate;
the insulator comprises silicon dioxide; and
the intergate dielectric comprises silicon dioxide.

73. (Previously Presented) The floating gate transistor of claim 71 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

74. (Currently Amended) A floating gate transistor comprising:
a source region formed in a substrate;
a drain region formed in the substrate;
a channel region in the substrate between the source region and the drain region;
a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $\text{Si}_{1-x}\text{C}_x$, wherein x is selected to be between 0.1 and ~~[[0.5]]~~ 0.4; and
a control gate deposited on the floating gate and separated from the floating gate by an intergate dielectric.

75. (Previously Presented) The floating gate transistor of claim 74 wherein:
the substrate comprises a p-type silicon substrate;
the source region comprises an n⁺-type source region formed in the substrate;
the drain region comprises an n⁺-type drain region formed in the substrate;
the insulator comprises silicon dioxide; and
the intergate dielectric comprises silicon dioxide.

76. (Previously Presented) The floating gate transistor of claim 74 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

77. (Currently Amended) A floating gate transistor comprising:
a source region formed in a substrate;

a drain region formed in the substrate;
a channel region in the substrate between the source region and the drain region;
a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $\text{Si}_{1-x}\text{C}_x$, wherein x is selected to be to be less than 0.5 between 0.1 and 0.4, the floating gate having n-type doping; and
a control gate deposited on the floating gate and separated from the floating gate by an intergate dielectric.

78. (Previously Presented) The floating gate transistor of claim 77 wherein:

the substrate comprises a p-type silicon substrate;
the source region comprises an n⁺-type source region formed in the substrate;
the drain region comprises an n⁺-type drain region formed in the substrate;
the insulator comprises silicon dioxide; and
the intergate dielectric comprises silicon dioxide.

79. (Previously Presented) The floating gate transistor of claim 77 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

80. (Currently Amended) A floating gate transistor comprising:

a source region formed in a substrate;
a drain region formed in the substrate;
a channel region in the substrate between the source region and the drain region;
a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $\text{Si}_{1-x}\text{C}_x$, wherein x is selected to be between $[[0.5]]$ 0.6 and 0.75; and
a control gate deposited on the floating gate and separated from the floating gate by an intergate dielectric.

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81. (Previously Presented) The floating gate transistor of claim 80 wherein:
- the substrate comprises a p-type silicon substrate;
 - the source region comprises an n+-type source region formed in the substrate;
 - the drain region comprises an n+-type drain region formed in the substrate;
 - the insulator comprises silicon dioxide; and
 - the intergate dielectric comprises silicon dioxide.
82. (Previously Presented) The floating gate transistor of claim 80 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.
83. (Previously Presented) A floating gate transistor comprising:
- a source region formed in a substrate;
 - a drain region formed in the substrate;
 - a channel region in the substrate between the source region and the drain region;
 - a floating gate separated from the channel region by an insulator, the floating gate comprising a silicon carbide compound $\text{Si}_{1-x}\text{C}_x$, wherein x is selected to be between 0.75 and 1.0;
- and
- a control gate separated from the floating gate by an intergate dielectric.
84. (Previously Presented) The floating gate transistor of claim 83 wherein:
- the substrate comprises a p-type silicon substrate;
 - the source region comprises an n+-type source region formed in the substrate;
 - the drain region comprises an n+-type drain region formed in the substrate;
 - the insulator comprises silicon dioxide; and
 - the intergate dielectric comprises silicon dioxide.
85. (Previously Presented) The floating gate transistor of claim 83 wherein the floating gate comprises a material selected from the group consisting of a monocrystalline silicon carbide

compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

86.-97. (Canceled)

98. (Previously Presented) The transistor of claim 36, wherein the gate is an electrically isolated floating gate and further comprising a control gate, separated from the floating gate by an intergate dielectric comprising silicon dioxide.

99. (Previously Presented) The transistor of claim 37 wherein:
the insulator comprises silicon dioxide; and
the gate comprises a material selected from the group consisting of a monocrystalline silicon carbide compound, a polycrystalline silicon carbide compound, a microcrystalline silicon carbide compound, and a nanocrystalline silicon carbide compound.

100. (Canceled)